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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/880,453

06/13/2001

Motohiro Tanno

3815/123

5239

29858

7590

09/07/2004

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EXAMINER

HA, DAC V

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,453

Applicant(s)

TANNO ET AL.

Examiner

Dac V. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 10-20 and 23-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/22/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 06/14/00. It is noted, however, that applicant has not filed a certified copy of the foreign application as required by 35 U.S.C. 119(b).

Drawings

2. The drawings are objected to because Figure 2 includes unknown text. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, 6, 21, 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Zhengdi (US 6,751,247).

Regarding claim 1, the admitted prior art on pages 1-4, and Figure 1 of the instant application teaches all the claimed subject matter in claim 1, except for the claimed subject matter "an averaging step of averaging first correlation values in phase in complex number over a plurality of periods of the synchronization channel, and of outputting first averaged correlation values". Zhengdi, in the same field of endeavor, discloses averaging the correlation result immediately after the correlation computation over a period to reduce the noise effect (col. 4, lines 37-41, 50-54). Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention to incorporate the technique of averaging the correlation result, taught by Zhengdi, into the conventional synchronization method, as disclosed in the admitted prior art, to improve the signal detection, thus provide more accurate synchronization.

Regarding claim 2, Zhengdi discloses the claimed subject matter "wherein the averaging step averages the first correlation values within an averaging window over a plurality of periods of the synchronization channel" in col. 4, line 39.

Regarding claim 3, once the averaging technique of Zhengdi is incorporated into the admitted prior art, the claimed subject matter “wherein the peak detecting step detects a peak of the first power averaged correlation values” would have been realized by one skilled in the art.

Regarding claim 6, the claimed subject matter “wherein the averaging step carries out averaging using an exponential weighting averaging method” would have been design preference, thus would have been optional to one skilled in the art.

Regarding claim 21, the claimed subject matter “wherein the averaging step carries out the averaging over a plurality of first averaging periods that are different from each other, and the powerizing step selects a maximum value from the plurality of powerized correlation values” would have been obvious to one skilled in the art based on the above combination.

Regarding claim 22, the claimed subject matter “wherein the averaging step carries out the averaging over a second averaging period that adaptively varies” would have been optional to one skilled in the art.

5. **Claims 4, 7, 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Zhendi as applied to claim 2 above, and further in view of Poulbere et al. (US 6,785,350) (hereinafter Poulbere).

Regarding claim 4, the combination of admitted prior art and Zhendi teaches all the claimed subject matter in claim 4, as stated above, except for the claimed subject matter “wherein a number of periods of the first correlation values, over which the averaging is carried out in the averaging window, is equal to a moving unit of the

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averaging window". However, utilization of moving average is known in the art of correlation (Poulbere, Figure 2; col. 7, lines 42-44). Therefore, the claimed subject matter in claim 4 would have been optional to one skilled in the art.

Regarding claim 7, Poulbere also discloses "wherein the averaging step makes phase correction of one of the first correlation values by using the first correlation values in a period previous to the period of the one of the first correlation values" is known (col. 6, lines 34-53).

Regarding claim 9, wherein the powerizing step outputs real parts of the first correlation values to which the phase correction is applied" would have been design preference.

6. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Zhendi as applied to claim 2 above, and further in view of Citta et al. (US 6,304,619) (hereinafter Citta).

Regarding claim 5, the combination of admitted prior art and Zhendi teaches all the claimed subject matter in claim 4, as stated above, except for the claimed subject matter "wherein the averaging step assigns weights at every period of the first correlation values in the averaging window". However, utilization of weighted correlation is known in the art of correlation (Citta, col. 7, lines 54-60). Therefore, the claimed subject matter in claim 5 would have been optional to one skilled in the art.

7. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Zhengdi and Poulbere as applied to claim 7 above, and further in view of Citta.

Regarding claim 8, the combination of admitted prior art, Zhendi and Poulbere teaches all the claimed subject matter in claim 7, as stated above, except for the claimed subject matter "wherein the averaging step assigns weights to every period of the first correlation values to which the phase correction is applied." However, utilization of weighted correlation is known in the art of correlation (Citta, col. 7, lines 54-60). Therefore, the claimed subject matter in claim 5 would have been optional to one skilled in the art.

Allowable Subject Matter

8. **Claims 10-20, 23, 24-27** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-273-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Dac V. Ha", with a horizontal line drawn underneath the signature.

Dac V. Ha
Examiner
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